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ABSTRACT

The materials in this educational packet are designed for use with students in grades 4 through 7. They consist of a overview, three lesson plans and student data sheets, and a poster. The overview presents the history, causes, and present state of species endangerment and a review of legislation by Congress designed to protect threatened or endangered plants and animals. A glossary and list of reference materials are included. The lesson plans provide a list of learning outcomes, instructional strategies, a list of materials needed, and a quiz (with answers). The activities in the lessons focus on: (1) critical habitats and habitat protection; (2) a community's role in addressing the problems of protecting an endangered species; and (3) the threatened and endangered species in the student's particular state. The poster presents a composite photograph of the hawksbill sea turtle, showing how it is threatened by destruction of nesting beaches and by trade in ornaments made from its shell. An additional crossword puzzle activity is provided on a separate "student page". (JN)

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Endangered Species

Issue Pac

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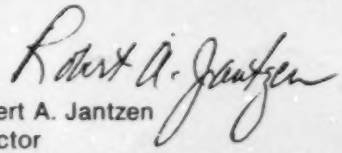
A Message To Educators

The Fish and Wildlife Service manages millions of acres of land, conducts wildlife research, raises fish for restocking depleted waters, and performs hundreds of other tasks designed to benefit fish and wildlife resources. However, as important as these activities are, we realize that in the long run an informed, motivated, and involved public can do more to benefit wildlife than all of our management activities.

This education package represents an important step in our efforts to provide teachers and other educators with factual information about wildlife, habitat, and resource management. We hope that you find these materials useful and that you will encourage your students to learn more about America's wildlife heritage.



Robert A. Jantzen
Director
U.S. Fish and Wildlife Service

These materials are designed for use with students in grades four through seven.

Contents

Issue Overview
This presents the history, causes, and present state of species endangerment. Recalling the comeback of the cougar in the Eastern United States, this background material explores the growing awareness of the impact people have on wildlife. The Overview reviews legislation by Congress to protect threatened or endangered plants and animals. Bold face words are explained in the Glossary, and Reference Materials are listed under Resources.

Poster: Side 1
This composite photo tells the story of the hawksbill sea turtle. It shows how the animal is threatened by destruction of nesting beaches and by trade in ornaments made from its shell. A pointed introduction to the concept of endangerment.

Poster: Side 2
This diagram tells another part of the story—the endangerment of species has accelerated at an enormous rate in the last two centuries. What does this say for the future?

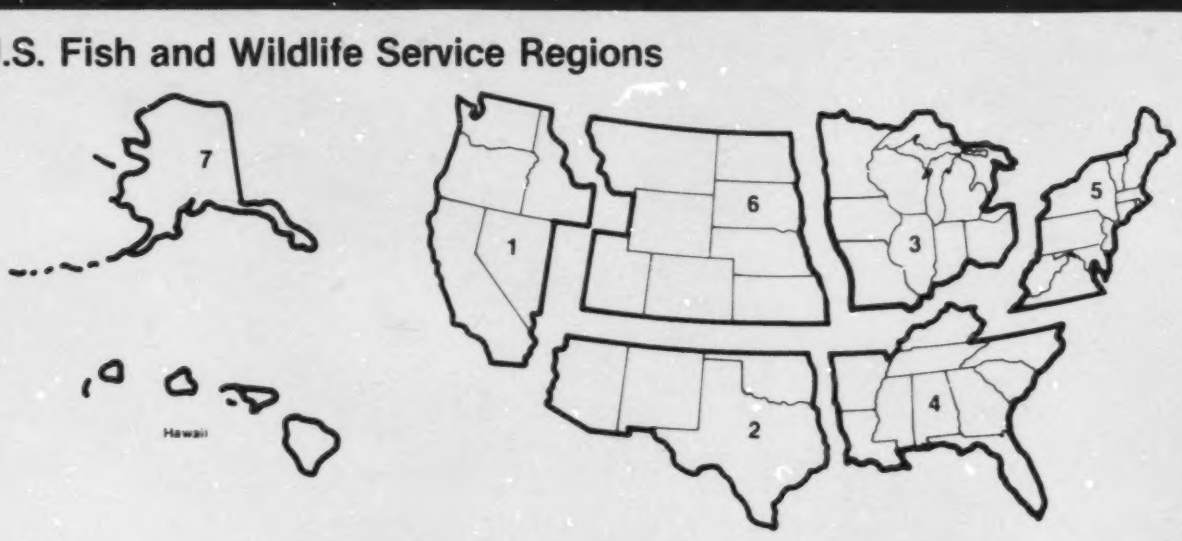
Student Page
Where Are They Now?
An endangered species puzzle. From a list of animals and clues, the students will be able to fill a crossword puzzle grid.

Lesson Plan 1:
Critical Habitat
The concept is introduced by observations made around the schoolyard. What does a creature need to live? Which losses might endanger its survival? Can it adapt to the new circumstances? The students will create cartoon stories illustrating these findings.

Lesson Plan 2:
Community Roles
This lesson will propel the class into a spirited role-playing dialog. They will serve on the Town Council, represent an industry that wants to build a new plant, speak for a citizen's group, and act as members of an animal protection organization. A lively time's ahead!

Lesson Plan 3:
Endangered Neighbors
Following upon the simulation in Lesson 2, this activity encourages the students to act as informed, responsible, and responsive citizens. A list of all threatened and endangered species in the United States is included, as is a sample letter asking information about what is being done to help protect the species in the students' State.

U.S. Fish and Wildlife Service Regions



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The mission of the National Institute for Urban Wildlife is to be a responsible and effective scientific and educational organization advocating the enhancement of urban wildlife values and habitat and the wise use of all natural resources for the benefit of people in cities, suburbs, and developing areas.

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The Institute accomplishes its mission by (1) conducting sound research on the relationship between man and wildlife under urban and urbanizing conditions; (2) discovering and disseminating practical procedures for maintaining, enhancing or controlling certain wildlife species in urban areas; and (3) by building an appreciation for, and understanding of, wildlife and a positive conservation ethic at the local community and neighborhood level, and illustrating how all segments of our people have a vested interest in wildlife and the environment we mutually share.

Developed by the U.S. FISH AND WILDLIFE SERVICE/DEPARTMENT OF INTERIOR
Produced by the NATIONAL INSTITUTE FOR URBAN WILDLIFE under a grant from EXXON COMPANY, U.S.A.

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Havens for Some Endangered Species

Key:

1 Egmont Key NWR* (Florida)
2 Blackwater NWR (Maryland)
3 Wapack NWR (New Hampshire)
4 Squaw Creek NWR (Missouri)
5 Aransas NWR (Texas)
6 Dexter National Fish Hatchery (New Mexico)
7 Ellicott Slough NWR (California)
8 Huleia NWR (Hawaii)
9 Aleutian Islands NWR (Alaska)
10 Grays Lake NWR (Idaho)

*NWR—National Wildlife Refuge

Endangered Species

Issue Overview

Introduction

The driver slowed, then braked hard as the lights from the car spotlighted an animal crossing the road. Confused, the car's passengers stared openmouthed at the animal—a "painter" was not supposed to be in the southern Appalachian Mountains.

Some people call the animal "painter," "catamount," cougar, or "Indian devil." Others know it as the panther, puma, or mountain lion. The eastern mountain lion originally lived throughout the Eastern United States and Eastern Canada. However, with the encroachment of civilization, the mountain lion gradually disappeared. By the early 1900's, it was considered extinct in most of the Eastern States.

However, sightings and other evidence increased during the 1970's. In Virginia, approximately 20 sightings, many of them apparently reliable, are reported each year. Farther south, cat droppings and tracks too large for bobcat, and deer kills with the predator's tooth marks too far apart for bobcat, have been observed in the Great Smoky Mountains National Park. The mountain lion, primarily because of legal protection and **habitat** preservation, just might be living in the East again.

Historical Perspective

Recently people have become more aware of—and concerned about—the impact they have on all forms of life. Today, State and Federal laws exist to protect plants and animals. That has not always been the case.

Eastern cougar—an endangered mammal.

When colonists first arrived in the New World, they found an abundance of fish and wildlife. However, some species soon began to disappear as land was cleared and natural habitats were destroyed. The widespread killing of game species to supply restaurants and markets in large cities contributed to the decline, as did the commercial exploitation of some species for fur, feathers, and material for jewelry.

Concern about the future of some animals began to grow at the beginning of the 20th century. The Lacey Act made it a Federal violation to ship illegally killed birds and other animals across State lines. In 1903, Florida's Pelican Island was set aside by President Theodore Roosevelt as the Nation's first National Wildlife Refuge. State and Federal laws designed to protect plants and animals became more common, and the growing awareness of people toward the needs of wildlife reached a pinnacle during the environmental movement of the 1960's.

All living things—humans included—need adequate food, water, air, and shelter in order to survive. As the activities associated with a growing Nation began to affect the natural environment adversely, some species began to decline so rapidly that their survival was endangered. Federal and State laws now exist to protect **endangered species** or species that might become endangered in the near future.

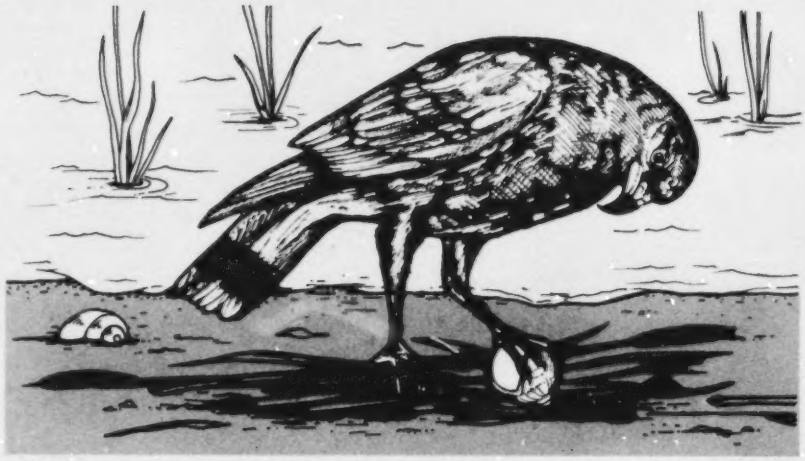
The Endangered Species Act defines an "endangered" species as one that is in danger of extinction throughout all or a significant portion of its range. Under the law, an endangered species can not be harmed, pursued, hunted, transported, or traded in interstate or foreign commerce without special permission.

Why Species Become Endangered

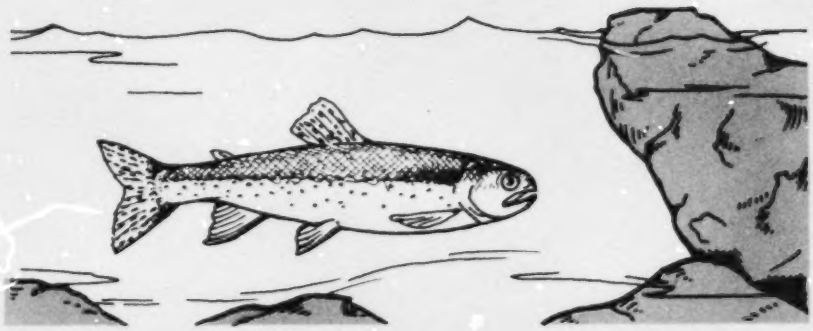
Endangerment and extinction can be natural processes. Fossil records show that many plants and animals have become extinct since life first appeared on earth. People are concerned, though, about the increasing rate at which species are becoming endangered. Some experts feel that 30 to 40 species become endangered yearly in the United States alone. In tropical regions the number is likely to be much greater.

The primary reasons for endangerment are:

- Habitat loss (most important). For example, the cutting of mature southern pines has reduced the number of red-cockaded woodpeckers. Many desert fish have become **threatened** by the destruction of the small springs and pools in which they live.
- Overspecialization. The Everglade kite (a bird) feeds only on one type of snail. Wetlands destruction has led to the decline of the snail and, thus, the kite.
- Environmental contamination. The indiscriminate use of some pesticides adversely affects populations of certain species (e.g., bald eagle, brown pelican, and peregrine falcon).
- Commercial exploitation. Animals are collected and sold for hides, feathers, and shells. The shell of the hawksbill sea turtle (see poster) is valued for making ornamental mirrors, jewelry boxes, and other objects. Some plants (e.g., species of cacti valued as decorative plants) have also been overharvested.
- Competition from introduced or non-native species. Hogs introduced by sailors have killed off several species of Hawaiian ground-nesting birds. Also, the greenback cutthroat trout is threatened by introduced trout species in some of the remote Western streams.

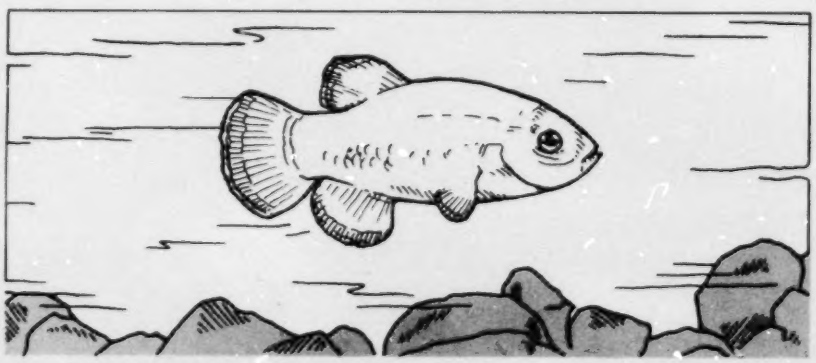


Everglade kite—an endangered bird.



Greenback cutthroat trout—an endangered fish.

Another important variable in the equation of extinction is the reproduction rate of a species. Species with higher reproduction rates are able to rebuild their populations faster once the problems threatening them are removed. With proper protection, endangered butterfly populations may recover faster than endangered deer, which may recover faster than whales. In addition, faster reproducing populations are better able to adapt to a changing environment—perhaps few insects are on the Endangered Species list because they breed so rapidly and can adapt to changes in a short time. Obviously, though, a rapid reproduction rate will not help a species if the necessary habitat is destroyed or polluted.



Devil's Hole pupfish—an endangered fish.

Values of Species:

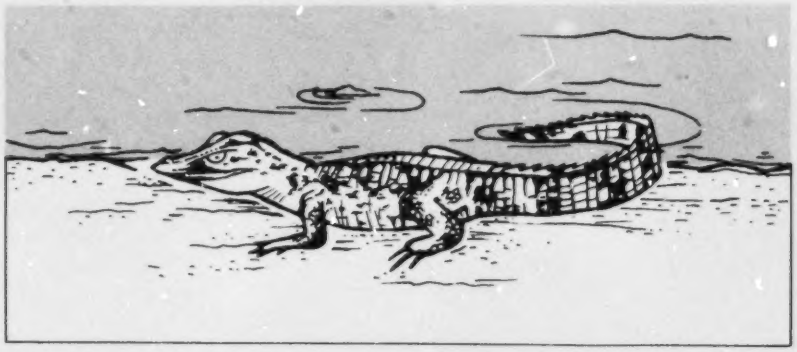
Balance

The extinction of a species might severely upset the balance of nature. There is disagreement about the effect of species loss on an ecosystem. Some ecologists claim that since all things are interdependent and part of "the web of life," species loss is potentially disastrous. Other ecologists argue that a species already endangered is usually present in too few numbers to influence the total ecosystem. The loss of that species, therefore, would have very little impact.

However, there is no denying that changes in the population level of one species can have far-reaching (and often unforeseen) effects. For example, researchers along portions of the Amazon River thought that they could improve local villagers' fish catches by removing fish-eating caimans—reptiles similar to crocodiles. Actually, more caimans meant more caiman excrement, which acted as a natural fertilizer. The added nutrients in the water resulted in more fish. Because of the unique chemistry of the Amazon River, removing the caimans actually reduced the fish available to the villagers. This interrelatedness of species can be illustrated by many other examples. In the Eastern United States the elimination of wolves is one factor that contributes to deer **management** problems. Many plants and animals suffer when deer increase rapidly and outstrip their food supply. Eventually, starvation and disease reduce the deer population, but the herd might not have increased so drastically if wolves had still been there.

Food and Medicine

Extinct plants and animals might have been useful as food or medicine. A high-yield hybrid rice used in the Philippines became vulnerable to a plant disease. After much experimentation, a hybrid resistant to most of the Philippines' plant diseases and pests was developed. However, this new rice was found to be easily destroyed by high winds. Crossbreeding with an old Taiwan strain of rice was suggested to solve this problem. Unfortunately, the strain was no longer available because Taiwanese farmers had switched to the new Philippine hybrids. Plants and animals have other values too. Some yield medicines or are used in medical research. Where would we be if the mold *penicillium*, from which the valuable antibiotic penicillin was derived, had become extinct?



Black caiman (immature)—an endangered reptile.

Antioch Dunes eveningprimrose—an endangered plant.

Health of the Environment

Plants and animals can also warn people of dangerous environmental situations. Declines in the populations of the peregrine falcon, the osprey, and the bald eagle warned us about our unwise use of DDT. Some species of lichens are very susceptible to sulfur dioxide and might also be used as indicators of air pollution.

Management Techniques

Experts use many different techniques to manage animal and plant populations. Some of the techniques are particularly useful when applied to endangered species.

- Habitat protection and modification. Refuges and sanctuaries have been established to provide food, cover, and nesting areas for many endangered species. These refuges make up an important part of the **critical habitat** of these species. The improvement of streams and the removal of competing species help some endangered fish (e.g., greenback cutthroat trout). Controlled burns maintain habitat conditions necessary for a particular species (e.g., Kirtland's warbler).
- Egg transfer and "double clutching." Eggs laid by healthy birds are placed in the nests of pesticide-affected birds (e.g., bald eagles). The healthy bird will often lay a second clutch of eggs.

- Cross-fostering. Whooping crane eggs have been placed in the more common sandhill crane nests. A second flock of the endangered whoopers has been started this way.
- Captive breeding of animals and propagation of plants. Some species of endangered fish, mammals, and plants have been successfully raised in fish hatcheries, research centers, greenhouses, and zoos. For example, hatchery-bred Colorado squawfish can be used to augment natural populations.

Few people dispute the important roles that plants and animals play in the web of life. The testimonies that led to the 1978 amendments to the Endangered Species Act served to remind us how little we know about plants and animals and their relationship to the whole. The amendments emphasize that people must carefully weigh their ethical responsibilities to plants and animals; the economic, esthetic, and ecological values of a species; and the many varied needs of society.

Glossary

carnivore—An animal that eats the flesh of other animals.
critical habitat—Those areas within a species' range that are essential to the species' survival or conservation. This is a technical term used by the Government to describe a habitat meeting a species' biological requirements.
endangered species—In a general sense, any plant or animal that is in danger of extinction. In a more formal sense, those species that have been placed on the official list of Endangered Species after an extensive status review by the U.S. Fish and Wildlife Service.
habitat—The place where an organism lives.
management—Human manipulation of factors affecting plants and animals (habitat, reproductive processes, laws, and regulations) to achieve the desired condition.
range—The region throughout which an organism occurs.
threatened species—Any plant or animal that is likely to become endangered in the foreseeable future.

Resources

General References

Endangered Species, Department of the Interior, Publications Unit, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

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The Lorax, Dr. Seuss. Random House, New York, 1971.

A Passing in Cincinnati: September 1, 1914. U.S. Government Printing Office, Stock Number 024-000-00824-0, Washington, D.C. 20402.

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Whooping Cranes, U.S. Department of the Interior, Publications Unit, U.S. Fish and Wildlife Service, Washington, D.C. 20240, 1974.

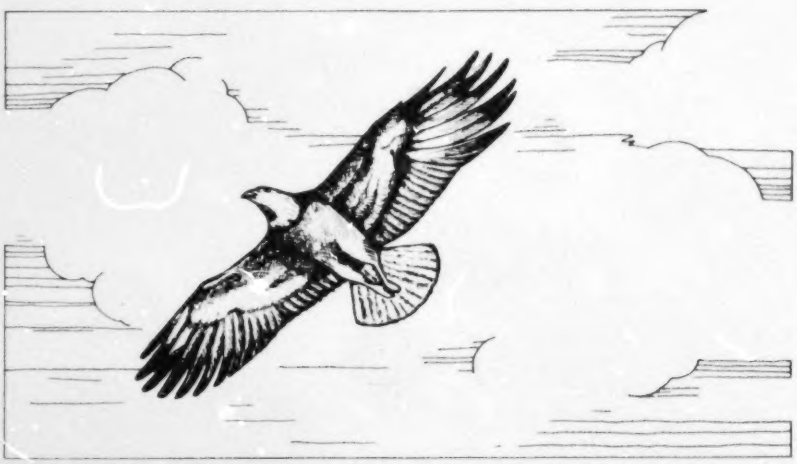
Films and Filmstrips

Cry of the Marsh, ACI Productions, New York, 1969.

The Lorax, BFA Educational Media, Santa Monica, California, 1972.

So Little Time, Department of the Interior, U.S. Fish and Wildife Service, Washington, D.C. 20240, 1968.

Vanishing Animals of North America (series of five sound filmstrips), National Geographic Educational Services, Washington, D.C., 1975.



Bald eagle—an endangered bird.

Endangered Species

Lesson Plan 1 — Critical Habitat

Purpose

Organisms need places to live, find food, and carry on all other life-sustaining functions. This activity will enable students to understand the importance of habitat protection.

Learning Outcomes

After completing this activity, the students will be able to:

A. Select from a list the correct definition for critical habitat.

B. Construct a cartoon addressing the concept of critical habitat.

C. Rank (based on their feelings) alternative uses of an imaginary critical habitat.

Organization

Who: Individual students

Where: Schoolyard and classroom

Time: 1 to 1½ hours

Materials

- Student Data Sheets (have extra Data Sheets available)
- Pencils
- Colored pencils or felt-tipped markers (optional)
- Toothpicks (optional)
- Modeling clay (optional)
- Pipe cleaners (optional)

Logging

Directions

1. Take a short discovery walk around the schoolyard. Let the students quietly point out plants, insects, birds, and other animals. Observe the organisms and discuss with the students the things living organisms need in order to survive (e.g., food, water, air, shelter). Hypothesize with the students how the school site might meet the needs of the observed organisms. Discuss the dangers the organisms must face in their environment.

2. Return to the class and review what was seen and discussed. Introduce the concept of **critical habitat** (see Glossary). Ask the students what they believe would happen to an organism if an essential part of its critical habitat were destroyed. If an organism or species is to survive in a changing environment, it must change its behavior or structure (evolutionary change). If an organism or species does not change (adapt), it will die.

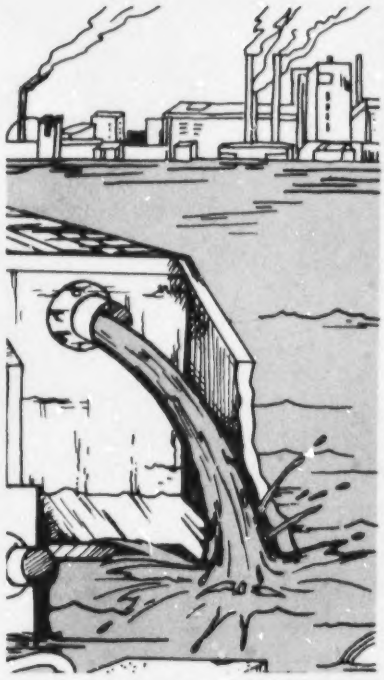
Discuss with the class that adaptive changes (structural or behavioral) in any species take many generations to accomplish. The animal or plant that can live in the most diverse habitat has the best chance of survival.

Would the organisms found by the students on the discovery walk continue to live when essential parts of their critical habitat are destroyed? Could these organisms adapt and survive? Which organisms are most likely to survive moderate changes in habitat? (Dandelion, house sparrow, gray squirrel are good examples.)

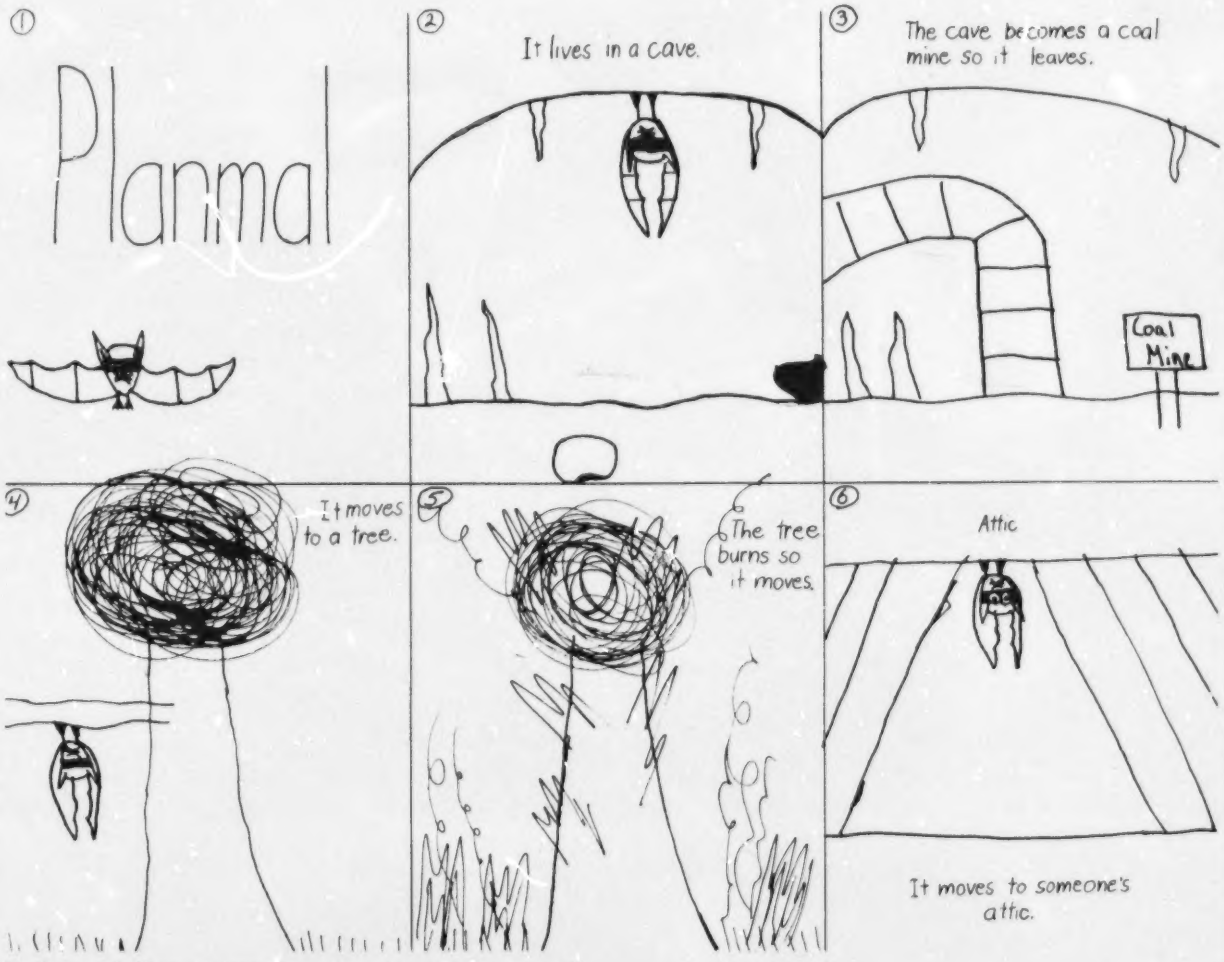
3. Distribute the Student Data Sheets. Explain to the students that they will pretend that they are an organism called the *planmal*. (Examples: The imaginary planmal might live on land away from people; but it is pretty and people like to look at it. Soon people begin to build houses near the planmal's den, burrow, or nest. Or the planmal might be an aquatic creature; or a flying one.)

The task is for the students to create a cartoonlike story about the planmal's fight for survival. In Frame #1 of the Data Sheet they draw a descriptive picture of the planmal. They should also write a short description of the organism and its lifestyle, needs and environment.

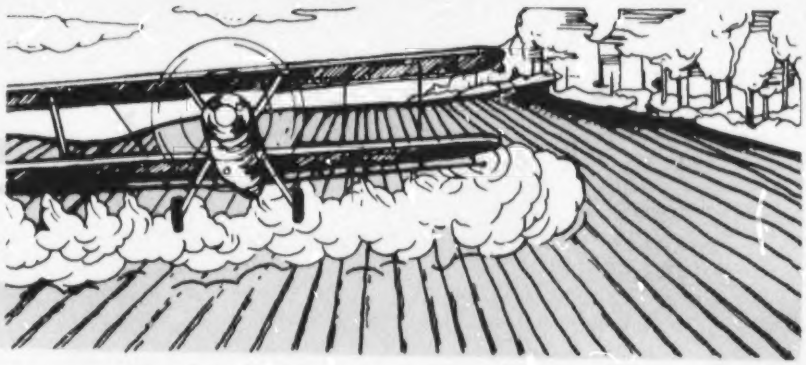
Frames #2 to #5 (or more—you may have to provide additional Data Sheets, will show and discuss habitat changes and the way in which the planmal copes with those changes. Allow the students to use their imaginations, but emphasize behavioral (life-style) adaptations, that are possible in one generation, rather than long-term structure changes. (E.g., It would take eons for a land species to become truly aquatic and evolve flippers in place of legs.)



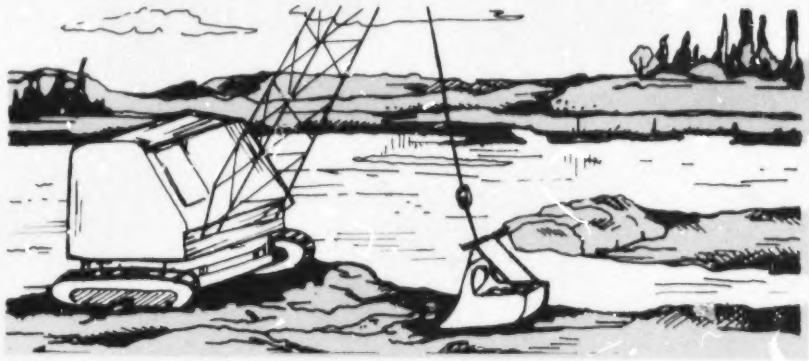
Contamination by other pollutants



The Planmal's Story, as drawn by a seventh grader.



Contamination by pesticides



Wetlands destruction

4. Many of the students' drawings will show things that are impossible e.g., animals flying airplanes or growing wings to escape from danger. The fact that these things don't really happen should be discussed. The students should be asked to consider whether most plants and animals are actually able to adapt to rapidly changing conditions in their habitat. After you have discussed this point, you may wish to have the students draw a second cartoon reflecting more realistic behavior.

Drawings might be made in pencil first and later "dressed up" with felt-tipped markers.

5. Share the completed cartoons with the class through a show-and-discuss format, or a bulletin board display. You should discuss and reinforce the ideas that (a) the planmal does not exist; (b) habitat destruction is the leading threat to species survival; (c) in most cases, major adaptations in an animal population occur over long periods of time. Individual animals can not adapt to dramatic changes in their environment overnight; (d) because adaptations take many generations to perfect in nature, the threatened species may well become extinct before such adaptive processes can come about.

6. An optional activity would be the construction of a model of the planmal. Modeling clay, pipe cleaners, toothpicks, or other materials can be used.

Quiz Answers

1. d is the best definition for "critical habitat." Critical habitat applies to both endangered and threatened species.

2. Experts feel that there are a number of reasons why species become endangered. Today the most serious threat to plants and animals is loss of habitat. Other reasons include: overspecialization, environmental contamination, commercial exploitation, and competition from introduced species. (See Issue Overview.)

3. True. In 1973, Congress passed the Endangered Species Act. Other laws, such as the Bald Eagle Protection Act of 1940, offer protection to some species. Most States have laws protecting endangered plants and animals.

4. As is true for many environmental issues, there is no one correct or incorrect answer to this question. This question should give the students an opportunity to examine their feelings concerning endangered species. It should also point out the need to analyze all aspects of an issue before a decision can be reached. This question might provide the basis for a discussion to introduce Lesson Plan 2.

5. False. Species usually take a long time to adapt. Structural changes take a longer time than behavioral adaptations.

Endangered Species Lesson Plan 1 Quiz

Name:

1. Circle the best definition for "critical habitat."
a. Those places that endangered or threatened species avoid.
b. Those places where endangered or threatened species are found.
c. Those places that supply the needs of endangered species.
d. Those places within the area where endangered or threatened species are found that supply the needs of the species.

2. List two reasons why species become endangered.

a. _____

b. _____

3. There are Federal and State laws that protect endangered species. (Circle correct answer.)

True **False**

4. Pretend you live in a town close to a stream where some people want to build a dam. Growing in the marsh near the stream is an endangered plant. This is how people are thinking about the dam:
a. A dam would be great! It would make a lake for boating, swimming, and fishing. It would also make needed electricity.
b. The dam would be bad! It would flood and destroy the critical habitat of an endangered plant. The plant is pretty and might be useful to make a chemical that protects people from colds.

How would you vote? ☐ For the dam? ☐ Against the dam?

Why? Give your reasons.

_____

_____

_____

5. Read this statement. Is it true or false? Circle your answer.

"In most cases, species can quickly adapt to changes in their habitats."

True **False**

Department of the Interior/U.S. Fish and Wildlife Service, 1980

Endangered Species

Lesson Plan 2

Community Roles

Purpose

The issue of endangered species is controversial. Often no definite answer is obvious. In this role play students will represent various community interest groups and the Town Council addressing the problems of protecting an endangered species. The students will become aware of the complexity of the issues.

Learning Outcomes

After completing this activity, the students will be able to:

A. List two valid reasons for protecting endangered species.

B. List two valid reasons for not protecting endangered species.

C. Indicate on an attitude scale their feelings about endangered species protection.

Organization

Who: 5 small groups

Where: Classroom

Time: 2 to 3 hours

Materials

- Student Data Sheets and pencils for each class member
- Poster boards, poster paints, colored markers, etc. (optional)
- Separate space for each group

Directions

1. Discuss with the students some of the positive and negative aspects associated with having an industry located in a community. For example, the taxes the company pays probably reduce homeowners' taxes. The local government, though, might have to build new schools or provide greater police and fire protection, and a number of other community services.

2. Explain to the students that they will be participating in a role-playing activity about the issue of an endangered species. The species is a **carnivore** (see Glossary). Students may select one role in which they are most interested and should try to think like the people they will be portraying.

3. Distribute the Student Data Sheets. Read through the issue and role descriptions with the students. Mention the Map of the Community (see Student Data Sheet) and suggest the students use it in developing their case. The students should mark with an 'X' their initial feelings on the attitude scale at the bottom of Page 2 of the Data Sheet.

4. Identify a separate space (section of the room) for each role group. The students should organize themselves into groups of approximately equal size (except for the Town Council, which should be represented by five, seven, or nine students).

5. Provide adequate time for the students to discuss and research their roles. This might include library research and discussions with adults and peers. If the students need help in developing their approach, you might offer one or two of these points:

Thomas' Products:
The company wants to build a plant for the following reasons —

- The company owns the land and should be able to build the new plant.
- The new plant would provide more tax money to the town of Lewes.
- The endangered species serves no one but itself. It's not abundant enough for many people to see. It eats the deer and rabbits that attract people—hunters and nonhunters—to the area.

• If the new plant is not built, Thomas' Products may have to close its existing plant and move to another area (out of state) where they can enlarge their operation. This means that 95 current jobs as well as 70 new jobs will be lost. There will be less tax money coming in.

Lewes Animal Protection Society (LAPS): LAPS does not want the new plant built. This group presents an argument based on the following:

• People do not have the right to cause any living organism to become extinct.

• If the plant is built, deer, rabbit, and mouse populations will increase to a point where those animals might begin to starve and become sick.

• No one really knows the value of that endangered species to people, now or in the future.

• Another building site must exist nearby. Thomas' Products just hasn't looked hard enough.

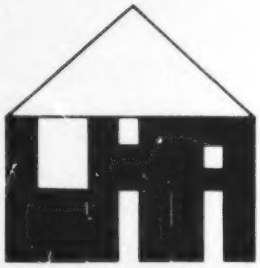
Lewes Outdoor Clubs Association (LOCA): The members of this group have mixed feelings about the plant.

• The plant would provide jobs close to home.

• The plant would not be a major polluter in the neighborhood.

• The area where the plant is planned is used by many people for hunting, fishing, hiking, bird-watching, and other forms of outdoor recreation.

• The area where the plant is planned attracts many tourists who buy things in Lewes and rent rooms in local motels and hotels.



Lewes Homeowner's Association (LHA): The members of this group are also divided about their feelings on plans of Thomas' Products to build the new plant. Their reasons:

- The critical habitat of an endangered species is nicer to have than the new plant.
- The new plant will increase traffic on the streets. That will mean more noise and some danger to children.
- The plant would pay taxes and this would reduce the taxes homeowners have to pay to run the town.
- Tourists sometimes rent rooms from local homeowners. If the new plant is built, the number of tourists will decrease.
- The needs of the town are more important than the needs of an endangered animal.

6. Each group presents its argument(s) to the Town Council. In some instances more than one argument may be presented. At least two members of each group should be involved in the presentation, and the group should prepare visual aids to display.

7. The Town Council leaves the room to discuss the arguments it has heard and to vote on the issue. At this point let the rest of the students repeat the attitude scale exercise, indicating with an 'O' their present feelings about the proposed plant.

8. When the Town Council returns, it announces its decision. Discuss the decision with the class. Discuss the second attitude scale response and reasons for any changes.

9. At some later date you might want to let students change roles and repeat this activity. You might also have the class develop its own endangered species issue and simulation activity.

Quiz Answers

1. There are many expressed reasons for protecting species.
Ethical—We don't have the right to consciously drive a species to extinction.
Utilitarian—Benefits to humans. Many organisms provide people with things that are necessary (e.g., medicines).
Stability—Some experts believe that the more different species existing in an ecosystem, the more stable is the ecosystem.
Danger Warning—Wildlife, like the proverbial canary used by coal miners to detect poisonous gas in mine shafts, can warn us of dangerous environmental situations.
Esthetic—It's enjoyable to see a variety of plants and animals.

2. Again, many possible answers exist. Among the reasons are:
Economic—The value of a project might outweigh the value an endangered species provides for people.
Personal Freedom—People's recreational and business activities should not be restricted by endangered species.
Ecosystem Value—A species already endangered exists in too few numbers to be useful to people or other organisms.
Ecosystem Impact—The loss of a single organism—particularly at the top of a food chain where few other creatures depend on it for their food—is likely to have little impact on the total ecosystem. (In some cases, however, this loss can have a big effect.)

3. As in question #1, there is no single correct answer. One criticism of the Endangered Species Act of 1973 concerns the act's strict habitat protection provisions. The 1978 amendments attempt to provide a means through which the value in protecting critical habitat for a species can be compared to a project's value. The students' responses to this question might lead into a discussion of the Endangered Species Act of 1973 as amended.

4. 1-b; 2-d; 3-a; 4-c.

Endangered Species Lesson Plan 2 Quiz

Name:

1. List two reasons often given for protecting endangered species.

a. _____

_____

b. _____

_____

2. List two reasons often given for **not** protecting endangered species.

a. _____

_____

b. _____

_____

3. Below are four statements. Put an X in the box above the statement you agree with most.

☐ Endangered species should always be protected.

☐ Endangered species should only be protected if they are important to people.

☐ Endangered species should be protected in all except a very few cases.

☐ Endangered species should not be protected when they stand in the way of progress.

4. Draw lines to match the Lewes groups (Column A) with an argument they might have used about whether to allow Thomas' Products to build a new plant.

A	B
1. Lewes Animal Protection Society (LAPS)	a. The company owns the land and should be able to build the plant.
2. Lewes Homeowners' Association (LHA)	b. People do not have the right to cause any animal to become extinct.
3. Thomas' Products	c. The area where they would build the plant is currently used for hunting, hiking, and fishing. This recreation will be lost if the plant is built.
4. Lewes Outdoor Clubs Association (LOCA)	d. The plant would pay taxes, and this would reduce the amount of taxes homeowners must pay to run the town.

Department of the Interior/U.S. Fish and Wildlife Service, 1980

Endangered Species

Lesson Plan 3

Endangered Neighbors

Purpose

All 50 States have endangered or threatened species. This activity will allow students to become familiar with the endangered and threatened species in their State.

Learning Outcomes

After completing this activity, the students will be able to:

A. Identify the names of endangered or threatened species in their State.

B. Select from a list one example of proper endangered species management techniques practiced in their State.

C. Indicate on an attitude scale how they feel about saving a particular endangered species.

D. Write a letter to the proper person(s) requesting information on endangered species living in their State.

Organization

Who: Individual students or small groups

Where: Classroom

Time: Two 1-hour sessions

Materials

- List of endangered or threatened species in the United States (see Student Data Sheets).
- Student Data Sheets for the entire class.
- Name of the agency, department, or person responsible for endangered species management in your State. This will require some research before presenting this activity to the class. Some resources you might try:

a. Telephone listings under "United States Government, Department of the Interior, Fish and Wildlife Service."

b. Local fish/wildlife law enforcement officer or game warden

c. Local or State Chamber of Commerce

d. Local or State Audubon Society

e. Other environmental organizations

f. Industrial organizations

g. County Extension Agent

h. Department of Natural Resources, Department of Fish and Game, or other State agency responsible for wildlife resources

Delmarva Peninsula fox squirrel—an endangered mammal.

West Indian (Florida) manatee—an endangered mammal.

Directions

1. Review with the class the meaning of the terms "endangered species," "threatened species," and "critical habitat." Ask the students why they think species become endangered. Focus on one aspect of the problem. (E.g., Can they give an example of habitat loss?) Is there a local example of habitat loss? What species are losing the areas in which they live? Are any of those species endangered?

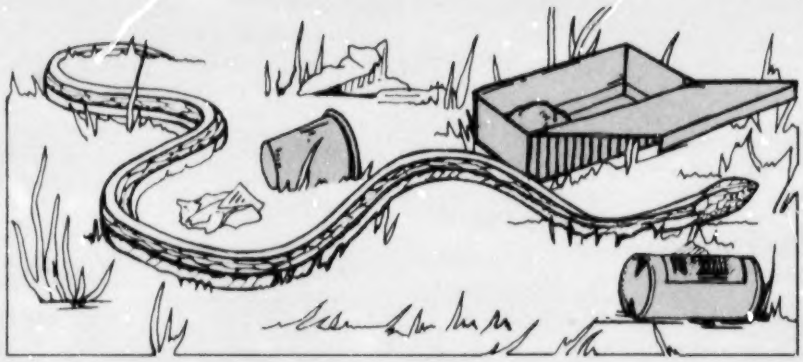
2. Ask the students whether they know of any endangered species in the State. What do they think are some reasons contributing to the endangerment of the species in their State? Distribute the Student Data Sheets and ask the students to see whether the species they named are listed. If they are not listed, discuss possible reasons. If they are listed, the students should circle the species.

3. Discuss with the students ways in which information about the species can be collected. Ask the students to whom they might write for information.

4. Discuss with the class proper business letter form. Organize the class into groups. Instruct each group to compose a letter to an individual (local or State) who has endangered species responsibility. The letter should request *specific information* on a particular species in your State. Names, population data, State efforts, and recovery or management techniques should be requested. The letter might also request specific information on species that at one time lived in your State but now are extinct. Some letters should be written to private businesses or professional organizations requesting information on their feelings about and responsibilities to endangered species (e.g., State Chamber of Commerce, a timber company in your State, or local Audubon Society). *Caution:* It is best not to inundate one person with requests for the same or similar information. If a number of letters are addressed to one person, restructure one letter to obtain the requested information for all; or enclose all the letters in one envelope.

5. Mail the letters and wait for responses. As the responses arrive, share them with the class. After a number are received, have the class organize and discuss the data. Students might write reports or stories on the management techniques used to help one endangered species recover in their State.

6. As a followup activity, you might request that two people with opposing viewpoints visit the class to make presentations and answer questions.



San Francisco garter snake—an endangered reptile.

Short-tailed albatross (immature)—an endangered bird.

Quiz Answers

1. b. The Endangered Species Act applies to plants and animals that are in danger of becoming extinct. You might point out that the Act also applies to plants and animals that are likely to become endangered in the foreseeable future if not protected.

2. Answers will vary depending upon your State. All 50 States have at least one listed species.

3. Answers will vary according to the State and species. State agencies would include those responsible for fish and wildlife resources and perhaps plant resources. All Federal agencies are required to carry out their activities without jeopardizing the survival of any listed endangered species. Depending upon species, actual protection responsibility is lodged with one of three agencies: the U.S. Fish and Wildlife Service (Department of the Interior), the National Marine Fisheries Service (Commerce Department), or the Animal and Plant Inspection Service (U.S. Department of Agriculture).

4. Answers will vary depending upon your State. Some general suggestions are provided under Materials in Lesson Plan 3.

Endangered Species Lesson Plan 3 Quiz

Name:

1. Circle the best definition for the term "endangered species."
a. Any species that is likely to become endangered.
b. Any species that is in danger of becoming extinct.
c. Any species that has become extinct.

2. Identify two endangered species that are listed in this State.

a. _____

_____

_____

b. _____

_____

_____

3. List three agencies (State or Federal) that are responsible for managing endangered species in your State.

a. _____

_____

b. _____

_____

c. _____

_____

4. List three places (or people) other than libraries where you would go to find out about endangered species in your State.

a. _____

_____

b. _____

_____

c. _____

_____

Department of the Interior/U.S. Fish and Wildlife Service, 1980

Name:

The Planmal's Survival

In a make-believe land not too far away lives the planmal, an organism that has always existed in large numbers. Changes occurred in that organism's habitat. The changes would have endangered most living things. The planmal had to struggle to survive but survive it did! How?

1

2

3

4

5

Department of the Interior/U.S. Fish and Wildlife Service, 1980

Name:

The Issue

Thomas' Products is seeking approval to build a second plant in Lewes. The company's existing plant does add some pollution to the air of the community. Thomas' Products is the area's largest employer and pays more taxes than any other industry. It employs 95 people now. The new plant would employ an additional 70 people.

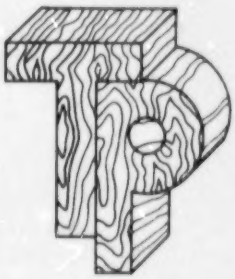
The land on which the new plant is to be built is part of the critical habitat of an endangered species. The animal helps control rats by feeding on them. It also eats rabbits and an occasional deer. Even though Thomas' Products owns the land, the company needs the approval of the Town Council in order to build the plant. Should the plant be built?

The Town of Lewes

Name:

Town Council: Five, seven, or nine members (choose an odd number) who must decide on the issue. They have three options: Allow Thomas' Products to build the plant; forbid Thomas' Products to build the plant; propose an alternative solution.

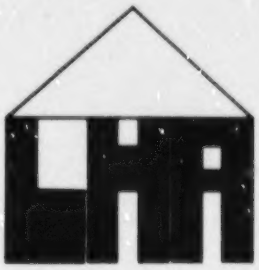
The Town Council must consider several trade-offs: the increased taxes that the plant would pay; the money that tourists bring to the town when they use the area; the possible pollution caused by the plant; health hazards to people and wildlife; and increase in traffic with potential hazards to both people and wildlife.



Thomas' Products This group represents the owners and workers who want to build the new plant.

Lewes Animal Protection Society (LAPS): LAPS does not want the plant built. It always supports the protection of all animals.

Lewes Outdoor Clubs Association (LOCA): LOCA is divided. Some members want the plant built, while others don't. Strong arguments are presented on both sides of the issue.



Lewes Homeowners' Association (LHA): LHA, like LOCA, is made up of some members who support building the plant, while other members of LHA are against the plant.

How do you feel?

☐ ☐ Thomas' should be allowed to build the plant.

☐ ☐ Don't know, but leaning toward allowing plant to be built.

☐ ☐ Don't know.

☐ ☐ Don't know, but leaning toward *not* allowing plant to be built.

☐ ☐ Thomas' should *not* be allowed to build the plant.

Name:

List of Endangered and Threatened Wildlife and Plants Native to the United States (and Territories)

How many endangered species and threatened species of plants and animals live in your State? Look through this list and count them. Maybe you can help in the effort to preserve endangered species in your State. Write a letter and find out! The sample letter will help.

(E) Endangered Species
(T) Threatened Species

Fishes

Pahranagat Bonytail (E) **NV**
Alabama Cavefish (T) **AL**
Bonytail Chub (E) **AZ,CA,CO, NV,UT,WY**
Humpback Chub (E) **AZ,CO,UT, WY**
Mohave Chub (E) **CA**
Slender Chub (T) **TN,VA**
Spotfin Chub (T) **AL,GA,NC, TN,VA**
Cui-ui (E) **NV**
Kendall Warm Springs Dace (E) **WY**
Moapa Dace (E) **NV**
Bayou Darter (T) **MS**
Fountain Darter (E) **TX**
Leopard Darter (T) **AR,OK**
Maryland Darter (E) **MD**
Okaloosa Darter (E) **FL**
Slackwater Darter (T) **AL,TN**
Snail Darter (E) **TN**
Watercress Darter (E) **AL**
Big Bend Gambusia (E) **TX**
Clear Creek Gambusia (E) **TX**
Goodenough Gambusia (E) **TX**
Pecos Gambusia (E) **NM,TX**
Pahrump Killifish (E) **NV**
Scioto Madtom (E) **OH**
Yellowfin Madtom (T) **GA,TN, VA**
Comanche Springs Pupfish (E) **TX**
Devil's Hole Pupfish (E) **NV**
Owens River Pupfish (E) **CA**
Warm Springs Pupfish (E) **NV**
Colorado River Squawfish (E) **AZ,CA,CO,NM,NV,UT,WY**

Redland School
Muncaster Mill Road
Rockville, Md. 20855
September 23, 1980

Mr. John Brown
Department of Natural Resources
Annapolis, Md. 21401

Dear Mr. Brown:

I am a sixth grade student at Redland School. Our class is studying endangered species. We found out that the Delmarva Peninsula Fox Squirrel which lives here in Maryland, is endangered. Please send me information on this animal. How many of this species remain here? What part of the State do they live in? Why have they become endangered?

We would like to find out also how endangered species are helped in Maryland. Please send me information on this. Is there anything we can do to help?

Thank you.

Sincerely,
Pam Early

Endangered Species

Unarmored Threespine Stickleback (E) **CA**
Shortnose Sturgeon (E) **CT,DE, GA,FL,MA,MD,ME,NC,NH,NJ, NY,PA,RI,SC,VA,**
Gila Topminnow (E) **AZ,NM**
Arizona Trout (T) **AZ**
Gila Trout (E) **NM**
Greenback Cutthroat Trout (T) **CO**
Lahontan Cutthroat Trout (T) **CA,NV**
Little Kern Golden Trout (T) **CA**
Paiute Cutthroat Trout (T) **CA**
Woundfin (E) **AZ,NV,UT**

Reptiles and Amphibians

American Alligator (E) **AL,AR, GA,MS,NC,OK,SC ,TX**
American Alligator (T) **FL,GA, LA,SC,TX**
Culebra Giant Anole (E) **Puerto Rico: Culebra Island**
Mona Boa (T) **Puerto Rico: Mona Island**
Puerto Rico Boa (E) **Puerto Rico**
Virgin Island Tree Boa (E) **U.S. Virgin Islands**
Golden Coqui (T) **Puerto Rico**
American Crocodile (E) **FL**
Mona Ground Iguana (T) **Puerto Rico: Mona Island**
Blunt-nosed Leopard Lizard (E) **CA**
Island Night Lizard (T) **CA**
St. Croix Ground Lizard (E) **U.S. Virgin Islands**
New Mexican Ridge-nosed Rattlesnake (T) **NM**
Desert Slender Salamander (E) **CA**
Red Hills Salamander (T) **AL**
Santa Cruz Long-toed Salamander (E) **CA**
Texas Blind Salamander (E) **TX**
Atlantic Salt Marsh Snake (T) **FL**
Eastern Indigo Snake (T) **AL,FL, GA,MS,SC**
San Francisco Garter Snake (E) **CA**
Houston Toad (E) **TX**
Pine Barrens Tree Frog (E) **FL**
Kemp's (Atlantic) Ridley Sea Turtle (E) **Tropical and temperate seas**
Green Sea Turtle (T) **Tropical and temperate seas**
Green Sea Turtle (E) **FL**

Lesson Plan 3

Hawksbill (Carey) Sea Turtle (E) **Tropical seas**
Leatherback Sea Turtle (E) **Tropical, temperate, and subpolar seas**
Loggerhead Sea Turtle (T) **Tropical and temperate seas**
Olive (Pacific) Ridley Sea Turtle (T) **Tropical and temperate seas**
Plymouth Red-bellied Turtle (E) **MA**

Snails

Chittenango Ovate Amber Snail (T) **NY**
Flat-Spired Three-toothed Snail (T) **WV**
Iowa Pleistocene Snail (E) **IA**
Noonday Snail (T) **NC**
Painted Snake Coiled Forest Snail (T) **TN**
Stock Island Snail (T) **FL**
Virginia Fringed Mountain Snail (E) **VA**

Data Sheet

Clams

Alabama Lamp Pearly Mussel (E) **AL,TN**
Appalachian Monkeyface Pearly Mussel (E) **TN,VA**
Birdwing Pearly Mussel (E) **TN, VA**
Cumberland Bean Pearly Mussel (E) **KY**
Cumberland Monkeyface Pearly Mussel (E) **AL,TN,VA**
Curtis' Pearly Mussel (E) **MO**
Dromedary Pearly Mussel (E) **TN,VA**
Green-blossom Pearly Mussel (E) **TN,VA**
Higgin's Eye Pearly Mussel (E) **IA,IL,MN,MO,NE,WI**
Orange-footed Pearly Mussel (E) **AL,IA,IN,KY,OH,PA,TN**
Pale Lilliput Pearly Mussel (E) **AL,MO,TN,WV**
Pink Mucket Pearly Mussel (E) **AL,IL,IN,KY,MO,OH,PA, TN,WV**
Sampson's Pearly Mussel (E) **IL, IN**
Tubercled-blossom Pearly Mussel (E) **IL,KY,TN,WV**
Turgid-blossom Pearly Mussel (E) **AL,AR,MO,TN**
White Cat's Eye Pearly Mussel (E) **IN,MI,OH**
White Wartyback Pearly Mussel (E) **AL,TN**
Yellow-blossom Pearly Mussel (E) **AL,TN**
Fine-rayed Pigtoe (E) **AL,TN,VA**
Rough Pigtoe (E) **KY,TN,VA**
Shiny Pigtoe (E) **AL,TN,VA**
Fat Pocketbook (E) **AR,IN,MO, OH**
Tan Riffle Shell Clam (E) **KY,TN, VA**

Name:

Endangered Species

Insects

Bahama Swallowtail Butterfly (T) **FL**
El Segundo Blue Butterfly (E) **CA**
Lange's Metalmark Butterfly (E) **CA**
Lotis Blue Butterfly (E) **CA**
Mission Blue Butterfly (E) **CA**
San Bruno Elfin Butterfly (E) **CA**
Schaus Swallowtail Butterfly (T) **FL**
Smith's Blue Butterfly (E) **CA**
Kern Primrose Sphinx Moth (T) **CA**

Crustaceans

Socorro Isopod (E) **NM**

Plants

Bunched Arrowhead (E) **NC,SC**
Tennessee Purple Coneflower (E) **TN**
Lipochaeta venosa (E) **HI**
Truckee Barberry (E) **CA**
Virginia Round-leaf Birch (E) **VA**
McDonald's Rock-cress (E) **CA**
Contra Costa Wallflower (E) **CA**
Tobusch Fishhook Cactus (E) **TX**
Nellie Cory Cactus (E) **TX**
Bunched Cory Cactus (T) **TX**
Lee Pincushion Cactus (T) **NM**
Sneed Pincushion Cactus (E) **NM TX**
Nichol's Turk's Head Cactus (E) **AZ**
Kuenzler Hedgehog Cactus (E) **NM**
Lloyd's Hedgehog Cactus (E) **TX**
Purple-spined Hedgehog Cactus (E) **UT**
Black Lace Cactus (E) **TX**
Arizona Hedgehog Cactus (E) **AZ**
Spineless Hedgehog Cactus (E) **CO,UT**
Davis' Green Pitaya (E) **TX**
Lloyd's Mariposa Cactus (T) **TX**
Brady Pincushion Cactus (E) **AZ**
Knowlton Cactus (E) **NM**
Peebles Navajo Cactus (E) **AZ**
Siler Pincushion Cactus (E) **AZ, UT**
Uinta Basin Hookless Cactus (T) **CO,UT**
Mesa Verde Cactus (T) **CO,NM**
Wright Fishhook Cactus (E) **UT**
Santa Barbara Island Liveforever (E) **CA**
Raven's Manzanita (E) **CA**
Chapman Rhododendron (E) **FL**
Rydberg Milk-vetch (T) **UT**

Lesson Plan 3

Hairy Rattleweed (E) **GA**
San Clemente Broom (E) **CA**
Hawaiian Wild Broad-bean (E) **HI**
Phacelia argillacea (E) **UT**
Haplostachys haplostachya var. *angustifolia* (E) **HI**
San Diego Mesa Mint (E) **CA**
Stenogyne angustifolia var. *angustifolia* (E) **HI**
Harper's Beauty (E) **FL**
Persistent Trillium (E) **GA,SC**
Cooke's Kokio (E) **HI**
San Clemente Island Bush-mallow (E) **CA**
MacFarlane's Four-o'clock (E) **ID,OR**
Eureka Eveningprimrose (E) **CA**
Antioch Dunes Eveningprimrose (E) **CA**
Dwarf Bear-poppy (E) **UT**
Crampton's Orcutt Grass (E) **CA**
Eureka Dune Grass (E) **CA**
Texas Wild Rice (E) **TX**
Northern Wild Monkshood (T) **IA, NY,OH,WI**
San Clemente Island Larkspur (E) **CA**
Green Pitcher Plant (E) **AL, GA**
San Clemente Island Indian Paintbrush (E) **CA**
Salt Marsh Bird's Beak (E) **CA**
Furbish Lousewort (E) **ME**

Data Sheet

Name:

Birds

Hawaii Akepa (honeycreeper) (E) **HI**
Maui Akepa (honeycreeper) (E) **HI**
Kuai Akialoa (honeycreeper) (E) **HI**
Akipolaau (honeycreeper) (E) **HI**
Yellow-shouldered Blackbird (E) **Puerto Rico**
Masked Bobwhite (Quail) (E) **AZ**
California Condor (E) **CA,OR**
Hawaiian Coot (E) **HI**
Mississippi Sandhill Crane (E) **MS**
Whooping Crane (E) **CO,ID,KS, MT,NE,ND,NM,OK,SD,TX, UT,WY**
Hawaiian Creeper (E) **HI**
Molokai Creeper (Kakawahie) (E) **HI**
Oahu Creeper (alauwahio) (E) **HI**
Hawaiian Crow (alala) (E) **HI**
Eskimo Curlew (E) **AK**
Palau Ground Dove (E) **Palau Islands**
Hawaiian Duck (koloa) (E) **HI**
Laysan Duck (E) **HI**
Bald Eagle (E) **Lower 48 States other than MI,MN,OR,WA,WI**
Bald Eagle (T) **MI,MN,OR,WA,WI**
American Peregrine Falcon (E) **AK, all Lower 48 States**
Arctic Peregrine Falcon (T) **AK, all Lower 48 States**
Laysan Finch (honeycreeper) (E) **HI**
Nihoa Finch (honeycreeper) (E) **HI**
Palau Fantail Flycatcher (E) **Palau Islands**
Tinian Monarch Flycatcher (E) **Marianas Islands**
Hawaiian Gallinule (E) **HI**
Aleutian Canada Goose (E) **AK, CA,OR,WA**
Hawaiian Goose (Nene) (E) **HI**
Hawaiian Hawk (Io) (E) **HI**
Crested Honeycreeper (akohe-kohe) (E) **HI**
Everglade Kite (E) **FL**
Marianas Mallard (E) **Marianas Islands, Guam**
LaPerouse's Megapode (E) **Palau Islands, Marianas Islands**
Nihoa Millerbird (E) **HI**
Nukupuu (honeycreeper) (E) **HI**
Kauai Oo (Oo Aa) (honey-eater) (E) **HI**

Name:

Ou (honeycreeper) (E) **HI**
Palau Owl (E) **Palau Islands**
Palila (honeycreeper) (E) **HI**
Puerto Rican Parrot (E) **Puerto Rico**
Maui Parrotbill (honeycreeper) (E) **HI**
Brown Pelican (E) **AL,CA,FL,GA, LA,MS,NC,SC,TX**
Hawaiian Dark-rumped Petrel (E) **HI**
Puerto Rican Plain Pigeon (E) **Puerto Rico**
Poo-uli (E) **HI**
Attwater's Greater Prairie Chicken (E) **TX**
California Clapper Rail (E) **CA**
Light-footed Clapper Rail (E) **CA**
Yuma Clapper Rail (E) **AZ,CA**
Newell's Manx Shearwater (T) **HI**
San Clemente Loggerhead Shrike (E) **CA**
Cape Sable Seaside Sparrow (E) **FL**
Dusky Seaside Sparrow (E) **FL**
San Clemente Sage Sparrow (T) **CA**
Santa Barbara Song Sparrow (E) **CA**
Ponape Mountain Starling (E) **Caroline Islands**
Hawaiian Stilt (E) **HI**
California Least Tern (E) **CA**
Large Kauai Thrush (E) **HI**
Molokai Thrush (olomau) (E) **HI**
Small Kauai Thrush (puaiohi) (E) **HI**
Bachman's (wood) Warbler (E) **AL,AR,FL,GA,KY,LA,MO,MS, NC,SC,TN**
Kirtland's Warbler (E) **MI**
Reed Warbler (E) **Marianas Islands**
Puerto Rican Whip-poor-will (E) **Puerto Rico**
Ponape Great White-eye (E) **Caroline Islands**
Ivory-billed Woodpecker (E) **AL, AR,FL,GA,IL,IN,KY,LA,MO, MS,NC,OK,SC,TN,TX**
Red-cockaded Woodpecker (E) **AL,AR,FL,GA,KY,LA,MD,MO, MS,NC,OK,SC,TN,TX,VA**

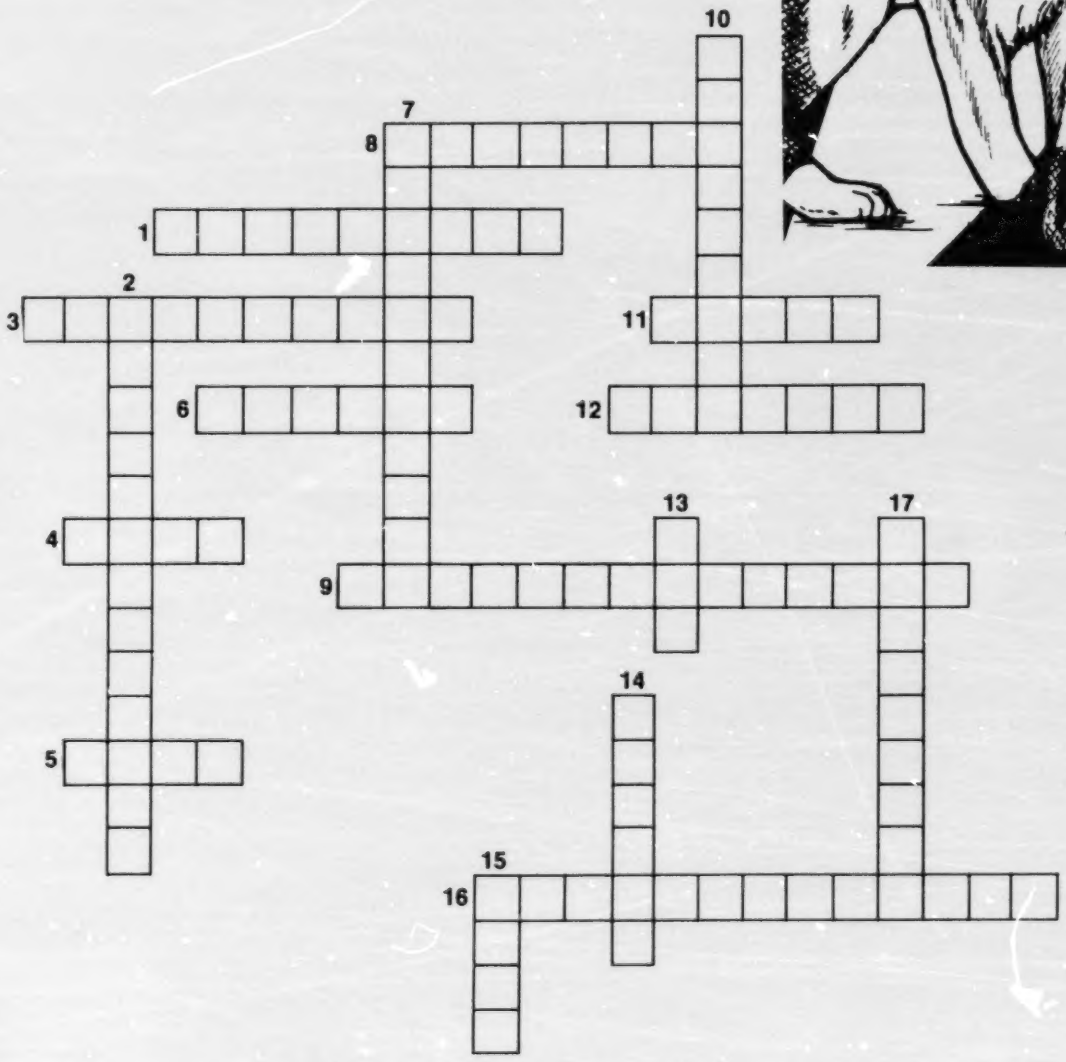
Mammals

Gray Bat (E) **AL,AR,KY,MO,OK, TN**
Hawaiian Hoary Bat (E) **HI**
Indiana Bat (E) **AL,AR,CT,FL, IL,IN,IO,KS,KY,MA,MD, MI,MO,MS,NC,NH,NJ,NY, OH,PA,RI,SC,TN,VA,VT, WI,WV**
Ozark Big-eared Bat (E) **AR,MO, OK**
Virginia Big-eared Bat (E) **IL,IN, KY,OH,VA,WV**
Brown or Grizzly Bear (T) **CO,ID, MT,WY**
Eastern Cougar (E) **Eastern North America**
Columbian White-tailed Deer (E) **OR,WA**
Key Deer (E) **FL**
Dugong (E) **U.S. Trust Terr.**
Black-Footed Ferret (E) **CO,KS, ND,NE,OK,SD,TX,WY**
San Joaquin Kit Fox (E) **CA**
Jaguar (E) **AZ,NM,TX**
Jaguarundi (E) **AZ,TX**
West Indian (Florida) Manatee (E) **AL,FL,GA,LA,MS,NC,SC**
Salt Marsh Harvest Mouse (E) **CA**
Southern Sea Otter (T) **CA,OR, WA**
Florida Panther (E) **AL,AR,FL, GA,LA,MS,SC**
Utah Prairie Dog (E) **UT**
Sonoran Pronghorn (E) **AZ**
Morro Bay Kangaroo Rat (E) **CA**
Caribbean Monk Seal (E) **FL,LA, TX**
Hawaiian Monk Seal (E) **HI**
Delmarva Peninsula Fox Squirrel (E) **DE,MD,PA,VA**
Blue Whale (E) **Oceanic**
Bowhead Whale (E) **Oceanic**
Finback Whale (E) **Oceanic**
Gray Whale (E) **Oceanic**
Humpback Whale (E) **Oceanic**
Right Whale (E) **Oceanic**
Sei Whale (E) **Oceanic**
Sperm Whale (E) **Oceanic**
Gray Wolf (E) **Lower 48 States other than MN**
Gray Wolf (T) **MN**
Red Wolf (E) **AR,KY,LA,MO,MS, TN,TX**

Compiled by U.S. Fish and Wildlife Service, 1980.

Where Are They Now?

Name:



Endangered Species

Many species of animals were once more numerous. Most on this list are threatened or endangered now; a few are making comebacks. Read the clues, and from the list below choose the animal that fits the spaces in the puzzle.

Alligator • Blue • Sea Otter • Kiwi • Snail Darter • Yak • Quetzal • Wolf • Peregrine • Sperm Whale • Everglade Kite • Bison • Green Sea Turtle • Bald Eagle • Condor • Cougar • Whooping Crane •

1. The national bird of the United States.

2. A native of the Everglades in Florida, this bird eats only apple snails, which are becoming very scarce.

3. Captain Ahab hunted this huge sea mammal in *Moby Dick*.

4. Several species of butterflies that are protected are named for their color.

5. A bird that cannot fly is making a comeback in New Zealand, its only habitat.

6. In the Eastern United States, this large wildcat was almost extinct but recently it has been seen more often.

7. This 10-centimeter-long (about 4 inches) fish delayed the huge Tellico dam project.

8. Almost everbody loves this endangered ocean mammal, but the abalone fishermen in California don't like it.

9. Early sailors hunted these huge sea reptiles and kept them for fresh meat in the holds of their ships. Poachers still kill them near the coast of Florida and the Pacific coast of Mexico.

Student Page

10. This falcon is one of the fastest birds in the world. It is being helped to make a comeback in some States—even in cities.

11. Huge herds of these animals once thundered over the North American plains.

12. South of the Border, this handsome green bird is greatly admired. It is featured in many legends, and a coin is named for it in Guatemala.

13. A large animal, the distant Asian cousin of Number 11.

14. A California vulture that is critically endangered. There are only about 30 left in the world.

15. This doglike animal has a strong family life. In the United States, few are living wild outside Alaska or Minnesota.

16. A large migratory bird; only about 90 of these birds are left in the wild.

17. A large reptile, native to Florida and other Gulf States.

Where Are They Now?

Name:

Answers: 1. Bald eagle; 2. Everglade kite; 3. Sperm whale; 4. Blue; 5. Kiwi; 6. Cougar; 7. Snail darter; 8. Sea otter; 9. Green sea turtle; 10. Peregrine; 11. Bison; 12. Quetzal; 13. Yak; 14. Condor; 15. Wolf; 16. Whooping crane; 17. Alligator.